

Appl. No. 10/017,089
Amdt. dated Nov. 17, 2003
Reply to Office Action of June 17, 2003

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) In combination with a coaxial laser resonator, an optical system [A system] for [the] reforming [of a] the laser beam generated by the laser resonator from [having] a circular sector shaped beam cross section into a laser beam with a rectangular beam cross section, said beam issuing from the laser resonator being directed in a [includes in the] beam path through said optical system which includes a mirror with a reflective surface shaped in the form of a circular sector of a parabolic rotational body.

A1: 2. (currently amended) The coaxial laser beam reforming system in accordance with Claim 1, wherein said reflective surface is the convex or concave surface of a parabolic rotational body.

3. (currently amended) The coaxial laser beam reforming system in accordance with Claim 2, wherein such parabolic rotational body is in the form of a rotational paraboloid.

4. (Currently amended) The coaxial laser beam reforming system as in accordance with Claim 2, [including] wherein said optical system includes a filter positioned in the line focus of the circular sector of the parabolic rotational body.

5. (currently amended) The coaxial laser beam reforming system as in accordance with Claim 3, [including] wherein said optical system includes a filter positioned in the point focus of the circular sector of the rotational paraboloid.

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6. (currently amended) The coaxial laser beam reforming system in accordance with Claim 1, [including] wherein said optical system includes an optical element interposed in the beam path after the [circular sector] beam has been reformed by said mirror, said optical element having at least one surface serving to reform the laser beam in two mutually perpendicular directions.

7. (currently amended) The coaxial laser beam reforming system in accordance with Claim 6, wherein said optical element is a bifocal lens.

8. (currently amended) The coaxial laser beam reforming system in accordance with Claim 6, wherein said optical element consists of several components.

9. (currently amended) The coaxial laser beam reforming system in accordance with Claim 8, in which said components of said optical element comprise a cylindrical lens and at least one parabolic cylindrical mirror.

10. (currently amended) In combination,

(a) a coaxial laser resonator with an annular discharge chamber and a circular sector shaped output opening generating a laser beam with a circular sector shaped beam cross section; and

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(b) a beam reforming system providing a beam path therethrough and including a mirror with a reflective surface shaped in the form of a circular sector of a parabolic rotational body[.] , said optical system reforming the laser beam into a laser beam with a rectangular beam cross section.

11. (currently amended) [A laser] The combination of a laser and optical system in accordance with Claim 10 wherein said circular sector of said parabolic rotational body is coaxially aligned with the circular sector axis of the laser beam incident thereon.

12. (new) The combination of a laser and optical system in accordance with Claim 10 wherein said reflective surface is the convex or concave surface of a parabolic rotational body, and wherein such parabolic rotational body is in the form of a rotational paraboloid.

13. (new) The combination of a laser and optical system in accordance with Claim 10 wherein said optical system includes an optical element interposed in the beam path after the beam has been reformed by said mirror, said optical element having at least one surface serving to reform the laser beam in two mutually perpendicular directions.

14. (new) The combination of a laser and optical system in accordance with Claim 13 wherein said optical element is a bifocal lens.

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15. (new) The combination of a laser and optical system in accordance with Claim 13 wherein said optical element consists of several components.

16. (new) The combination of a laser and optical system in accordance with Claim 13 in which said components of said optical element comprise a cylindrical lens and at least one parabolic cylindrical mirror.

17. (new) The combination of a laser and optical system in accordance with Claim 10 wherein said optical system includes a filter positioned in the line focus of the circular sector of the parabolic rotational body.

18. (new) The combination of a laser and optical system in accordance with Claim 10 wherein said optical system includes a filter positioned in the point focus of the circular sector of the rotational paraboloid.